

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
1 July 2004 (01.07.2004)

PCT

(10) International Publication Number
WO 2004/054929 A1

(51) International Patent Classification⁷: **C01B 33/18**

(21) International Application Number:
PCT/EP2003/014322

(22) International Filing Date:
16 December 2003 (16.12.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
102 58 857.0 17 December 2002 (17.12.2002) DE

(71) Applicant (for all designated States except US): **DE-GUSSA AG** [DE/DE]; Bennigsenplatz 1, 40474 Düsseldorf (DE).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **MÖRTERS, Martin** [DE/DE]; Dinkelbergstrasse 6, 79618 Rheinfelden (DE). **MANGOLD, Helmut** [DE/DE]; In der Gartel 2, 63517 Rodenbach (DE). **OSWALD, Monika** [DE/DE]; Burgallee 6c, 63454 Hanau (DE). **SCHUMACHER, Kai** [DE/DE]; Berliner Strasse 16, 65719 Hofheim (DE). **LACH, Heinz** [DE/DE]; Im Lochseif 63, 63517 Rodenbach (DE). **SCHNEIDER, Gerrit** [DE/DE]; Eppsteinstrasse 51, 63456 Hanau (DE).

(74) Common Representative: **DEGUSSA AG**; Intellectual Property Management, PATENTE und MARKEN, Standort Hanau, Postfach 13 45, 63403 Hanau (DE).

(81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (regional): European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR).

Declarations under Rule 4.17:

- as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii)) for the following designations AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW, European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR)
- of inventorship (Rule 4.17(iv)) for US only

Published:

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: **PYROGENIC SILICON DIOXIDE AND A DISPERSION THEREOF**

(57) Abstract: Pyrogenic silicon dioxide powder with a BET surface area of 30 to 90 m²/g, a DBP index of 80 or less, a mean aggregate area of less than 25000 nm² and a mean aggregate circumference of less than 1000 nm, wherein at least 70% of the aggregates have a circumference of less than 1300 nm. It is prepared by mixing at least one silicon compound in vapour form, a free-oxygen-containing gas and a combustible gas in a burner of known construction, igniting this gas mixture at the mouth of the burner and burning it in the flame tube of the burner, separating the solid obtained from the gas mixture and optionally purifying, wherein the oxygen content of the free-oxygen-containing gas is adjusted so that the lambda value is greater than or equal to 1, the gamma value is between 1.2 and 1.8, the throughput is between 0.1 and 0.3 kg SiO₂/m³ of core gas mixture and the mean normalised rate of flow of gas in the flame tube at the level of the mouth of the burner is at least 5 m/s. The powder can be used as a filler. A dispersion containing the powder according to the invention. The powder can be used as a filler in rubber, silicone rubber and plastics. The dispersion can be used to prepare glass items.